EXHIBIT D

Page 1

Page 2

1   MR. MILLER: Typically, at least start
2 the depositions out with at least introducing the
3 counsel, counsel of record.
4   I'm Rodney Miller, Womble Bond
5 Dickinson, on behalf of plaintiff Phenix Longhorn,
6 LLC.
7   MR. JOHNSON: Jeffrey Johnson, from
8 Baker Botts, on behalf of the defendant.
9   MR. WRIGHT: This is John Wright, on
10 behalf of plaintiffs as well.
11   MR. JOHNSON: This is Jeffrey again. I
12 have with me today, James Donovan, Noah Harrison,
13 who are summer associates with us at Baker Botts.
14 They're just listening in to grade Rodney Miller
15 on his performance.
16   MR. MILLER: Thank you. Again, I give,
17 like, C-minus work, I just barely make it all the
18 time.
19   But I'll say this: Ms. Bellinger, I do
20 not have the -- I have the real-time link, and I
21 see nothing going on here.
22   Are we typing?
23   Off the record.
24   (Off the record.)
25   MR. MILLER: Back on the record. We're

Page 3

1 ready to start.
2 BY MR. MILLER:
3   Q   Dr. Min, can you, please, state your
4 full name for the record.
5   **A   My name is Paul Min, M-I-N.**
6   Q   And have you been deposed before? Have
7 you been deposed before?
8   **A   Yes, I have.**
9   Q   How many times?
10   **A   I don't have exact numbers, but it is**
11 **over 50 times.**
12   Q   Okay. I just want to go, just a few
13 ground rules just for my purposes.
14   I'm going to ask you some questions.
15 Please let me finish before you answer. I will
16 try to let you answer before I ask my next
17 question. And this is especially important since
18 this deposition is fully remote, analyze answer
19 the questions verbally. I just wanted to start
20 and ask is there a reason today that you cannot
21 testify truthfully?
22   **A   Not that I can think of, no.**
23   Q   Okay. And you're aware that the main
24 reason for your deposition, or the reason for your
25 deposition today is because you provided a

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1 declaration in the Phenix Longhorn versus Innolux
2 Corporation pending in the Eastern District of
3 Texas, correct?
4   **A   That is correct.**
5   Q   I'll start off out and admit an
6 exhibit. Do Exhibit 1, the Declaration of Paul S
7 Min, Ph.D., Regarding Claim Constructions for US
8 Patent Number 7,233,305 and 7,557,788.
9   Can you please pull that up for me.
10   (Exhibit
11 #   marked for identification and
12 attached re
13 tained}.)
14   **A   Mr. Miller, as Mr. Johnson earlier**
15 **mentioned, I have freshly printed, unmarked paper**
16 **copies with me, for my declaration and two**
17 **patents, that I will be discussing today.**
18   Q   Okay. I'm just going to confirm that
19 you don't have any notes written on those, do you?
20   **A   I do not have any notes.**
21   Q   I'm going to trust Mr. Johnson and
22 Baker Botts and the great attorneys. I believe
23 you.
24   PLANET DEPOS TECHNICIAN: I'm sorry,
25 Mr. Miller, can you repeat the file name one more

5

1 time?
2   MR. MILLER: It should be the
3 declaration. You have it listed as 225-05-08 Min
4 Declaration.
5   PLANET DEPOS TECHNICIAN: Yes, I got
6 it. Thank you so much.
7   MR. MILLER: Are you going to put it up
8 on the screen?
9   PLANET DEPOS TECHNICIAN: Yeah, I'm
10 marking right now. Just let me pull it up. One
11 second.
12   MR. JOHNSON: While we're waiting. For
13 the record, I will just stipulate that, or
14 represent, that the copies he has are clean copies
15 with no markup.
16   MR. MILLER: Thank you, Mr. Johnson.
17   (Exhibit
18 #   marked for identification and
19 attached re
20 tained}.)
21   Q   Dr. Min, do you recognize this
22 document?
23   A   Yes.
24   Q   What is it?
25   A   It's a joint -- the declaration of

6

1 **Joseph McAlexander in Support of Plaintiff's Claim**
2 **Construction Positions Relating to Definiteness.**
3   MR. MILLER: Let me back up. That is
4 not the correct exhibit. It should be the Min
5 declaration.
6   MR. JOHNSON: If you want to do you
7 recognize Dr. Min on your declaration I'm happy to
8 let you do that.
9   MR. MILLER: I believe you will do a
10 great job, Mr. Johnson, I know you will.
11   Let's ask this: Ken do you have that.
12   PLANET DEPOS TECHNICIAN: I'm not
13 seeing it. The only declaration I have is that
14 one.
15   MR. MILLER: Can you refresh your Depos
16 repository?
17   PLANET DEPOS TECHNICIAN: Can you tell
18 me the first new numbers?
19   MR. MILLER: It has the date, the year
20 2025, it says 05- -- and then it's -mindec, and it
21 should be declaration ISO. It's more than
22 82 kilobytes.
23   PLANET DEPOS TECHNICIAN: One second.
24   MR. MILLER: There we go.
25 BY MR. MILLER:

7

1   Q   All right. Just ask the questions
2 again, Mr. Min. I'm sorry, Dr. Min.
3   Do you recognize this document that's
4 in front of us now?
5   A   Yes.
6   Q   And what is this document?
7   A   This is a declaration that I submitted
8 to the court in support of all defendant claim
9 construction.
10   Q   And the defendant to clarify the record
11 the defendants will be in this one Innolux,
12 correct?
13   A   That is correct.
14   Q   All right. Let's turn to page 57 of
15 your declaration, Exhibit 1.
16   And, Dr. Min, just want to confirm is
17 this your signature on this last page, on this
18 page 57?
19   A   Yes, it is.
20   Q   And did you believe, when you signed
21 this declaration, that it was complete and
22 accurate?
23   A   To the best of my knowledge, yes, that
24 is correct.
25   Q   Sitting here today, do you have any

8

1 changes or modifications that you need to make to
2 your declaration?
3   A   No, not that I can think of.
4   Q   Does this declaration, Exhibit 1,
5 contain all your opinions regarding claim
6 construction in this matter?
7   A   I did my best to do so. And sitting
8 here, that would be the case.
9   MR. MILLER: And I'm going to just
10 admit an exhibit, a few other documents, just for
11 ease.
12   Exhibit 2, let's do Exhibit 2.
13 Exhibit 2 will be -- it should be the doc, I'll
14 tell you, Technician, it should be the doc that
15 says '305 patent.pdf and it's the kilobytes at
16 774.
17   PLANET DEPOS TECHNICIAN: I see it.
18 One second, please.
19   MR. MILLER: All right.
20   (Exhibit
21 #   marked for identification and
22 attached re
23 tained}.)
24   Q   So we'll mark as Exhibit 2, I can't be
25 7,223,305 which will be referred to as either

9

1 Exhibit 2 or the '305 patent.
2   Dr. Min, do you recognize this
3 document?
4   A   Yes, I do.
5   Q   And did you review Exhibit 2 or the
6 '305 patent in preparation of your -- in putting
7 together your declaration?
8   A   Yes.
9   MR. MILLER: And we're going to admit,
10 next, as Exhibit 3. This should be the doc '788
11 patent. It should be 770 kilobytes.
12   PLANET DEPOS TECHNICIAN: One second.
13   Q   We have Exhibit 3 U.S. Patent 7,557,88,
14 it will be referred to as either Exhibit 3 or the
15 '788 patent.
16   Dr. Min, do you recognize Exhibit 3.
17   A   Yes, I do.
18   Q   Now we're going to go back to
19 Exhibit 1, Dr. Min.
20   Let's go back to Exhibit 1. And we're
21 going to start out, I'm going to talk about your
22 CV. And this should be at Appendix A -- sorry,
23 Exhibit A. My correction, Exhibit A to Exhibit 1.
24   MR. MILLER: For the court reporter --
25 or the technician, it should be the next page

10

1 after that page. After the page that you have,
2 that has the signature.
3   So if you want to get there quickly,
4 technical it's around page 58. Of the
5 declaration. There we go. And you're going to go
6 to the next page.
7   Q   Dr. Min, do you recognize this
8 document, just for the record, so it would be
9 Exhibit A of Exhibit 1?
10   A   Yes, I do.
11   Q   And what is it?
12   A   This is a copy of my CV, which was
13 submitted as an attachment or exhibit to the
14 declaration that I submitted for the claim
15 construction.
16   Q   And, Dr. Min, your CV is current as of
17 when?
18   A   As of the time my declaration was
19 submitted which I believe it was May 8th.
20   Q   Do you have any changes or additions or
21 corrections that you need to make to your CV?
22   A   I don't believe so.
23   Q   Also, too, these aren't trick questions
24 just more formality. Your counsel can inform you
25 it's just to make sure the record is clean.

11

1   A   I don't believe so.
2   Q   And, Dr. Min --
3   MR. JOHNSON: Just for the record,
4 anytime they say it's a trick question, it's not a
5 trick question, it's usually a trick question.
6   Q   And, Dr. Min, are you a University of
7 Michigan grad? You got your BS, MS, and Ph.D.
8 from the University of Michigan, correct?
9   A   Yes. That is correct.
10   Q   All right. And are you from the
11 Michigan area?
12   A   Well, I was born in South Korea and I
13 came to the United States in 1977, and went to the
14 University of Michigan. So I'm not really sure
15 how to answer the question.
16   I was born in South Korea and I lived
17 in Michigan for nine years.
18   Q   Are you a big University of Michigan,
19 are you a football fan of the school?
20   A   Not like some of the real fanatics, but
21 I follow every once in a while.
22   Q   We're just going to have some questions
23 I'm going to ask you regarding your CV here.
24   After you received your Ph.D. in 1987,
25 you went to -- and you worked at Bellcore in New

12

1 Jersey, correct?
2   A   Yes. That's correct.
3   Q   And what was your role at Bellcore?
4   A   My job title was member of technical
5 staff, and I belonged to a lab of about 200
6 people. We -- just kind of in the context, 1987
7 was part of a big transition period for the
8 telephone companies, going from good or
9 circuit-switch telephone network to what is known
10 those the multiservices complex package, which
11 environment was a period of time. So I was a part
12 of this lab that was given the assignment of
13 planning out the -- that migration.
14   Q   And you were there from
15 September '87 to August 1990, and from there you
16 were an assistant professor for the department of
17 electrical engineering from 1990 -- or start in
18 1990 and that was, where, at the -- is that
19 University of Washington in St. Louis, correct?
20   A   It is actually Washington University in
21 St. Louis.
22   Q   Oh.
23   A   It's a common mistake. A lot of people
24 make that.
25   Q   My fault. I'm sorry. I correct the

13

1 record on that one.
2 And then, I see from 1997 to 1999 you
3 were I worked at Min max technologies in sent
4 lies. And what did you do at Min max?
5 A So just to be clear, I am still part of
6 the tactile at Washington University in St. Louis
7 I have not left that pones. The minute max
8 technologies was a coil that I found, found,
9 together with my student to design components for
10 the -- at the time, it was an ATM network, so,
11 asynchronous transfer mode network. So we are
12 building various components, such as switch fabric
13 integrated circuit chips, and, you know, network
14 processors and things of that nature. So, various
15 components for the networking.
16 Q And you say it was a fabless
17 semiconductor company. Can you elaborate a little
18 bit more on that one, on that statement?
19 A Yes. So certain semiconductor
20 companies have their own fabs, like a fabrication
21 foundry, and those fabs, even back in 1997, costed
22 billions to build, and many start-up companies did
23 not have that kind of capital. So the fabless
24 semiconductor company means we do the design and
25 we contract -- contracted with the semiconductor

14

1 fab service companies, such as TSMC, UMC, ETMIL
2 (phonetic), and there are a number of different
3 semiconductor companies that had their own fab
4 facility and would contract services for
5 fabricating the third-party designs such as ours.
6 Q Okay. And after MinMax, you started in
7 we'll call it was it another start-up company from
8 1999 to 2008 was it Erlang Technology?
9 A Yes, that's correct.
10 Q What did you do at Erlang, and it's
11 E-R-L-A-N-G, Technology.
12 A So when we -- when we started MinMax,
13 there was a big fight between telephone company
14 and the other Internet service providers where the
15 fab on that should be Internet protocol or
16 asynchronous transformer the telephone companies
17 was added vocation synchronous transformer and
18 Internet providers were advocating Internet
19 protocol, IP. By the time 1998 came around, it
20 was clear that IP protocols was winning, so we
21 started a new company, Erlang, basically, folded
22 MinMax, and to focus on multiservices portion of
23 the Internet. So we're doing similar type of
24 work, designing ICs and components, but to also
25 Internet protocol, IP, and we are also doing

15

1 system prototyping and software development.
2 Q You said you received a product of the
3 year award from analog zone magazine in 2004.
4 What did you receive the award for? What was the
5 product?
6 A It was a switch fabric.
7 Q I'm going to move up to your teaching
8 experience. Just want to just ask some general
9 questions about some of your classes here.
10 At digital systems laboratory, can you
11 give me just a general information that you
12 taught? What did you teach with digital systems
13 laboratory? And it's on page 2.
14 A So I do not have a hard copy of this
15 one.
16 Q Here. We'll right there.
17 A Yes. So here.
18 Q And it's the Washington University,
19 it's EE455 and CS455.
20 A It's been a while since I taught this
21 class. I will have to -- oh, okay. So this was
22 actually a computer -- we have many laboratories,
23 I only taught this class once so that's why it
24 takes me a while to bring back the recollection.
25 So this is a 400 letter course and what

16

1 we do is we give our student microprocessor
2 mounted test board and we ask them to build a
3 certain assembly language-based program that
4 actually interacts with the processors in real
5 time so we can do interrupts, memory writes, and
6 things of that nature.
7 Q And what year was this? What year did
8 you teach this class?
9 A I do not recall, probably like 20 years
10 ago or something. A while ago.
11 Q Was it between 2000 and 2005?
12 20052010? You don't recall.
13 A It's likely in that decade, 2000s, but
14 I don't recall exact year. I was actually
15 covering for someone who went on sabbatical, who
16 usually teach this class.
17 Q And what about the electrical circuit
18 analysis case ESE230?
19 A That one I taught a number of times.
20 This is literally, as I said, introduction. So it
21 is, you know, like, a basic OEMs law, Kirchhoff's
22 law, Kirchhoff is K-I-R-C-H-O-F-F [sic],
23 Kirchhoff's current law, Kirchhoff's voltage law,
24 you know, doing circuit analysis. This is the
25 introductory class.

17

1   Q   What about the introduction to
2 electronic circumstance ESE232?
3   **A   That was the follow-up course to**
4 **ESC230. In ESC230 we didn't really do any -- I'm**
5 **trying to think. We did -- we probably didn't do**
6 **much active circuitry, active, by that, I mean**
7 **transitions, and semiconductors, diodes.**
8   **And 232 is, basically, inclusion of**
9 **those active components if the electrical circuit**
10 **and basically making the analysis.**
11   Q   Let me go back to the ES230. You said
12 you taught that a number of times.
13   Can you give me the years you taught
14 it. Are you teaching it now?
15   **A   Yeah, throughout 2000s and, probably,**
16 **2010s. Those two decades, I taught them.**
17   **I haven't taught this class for, maybe,**
18 **for the past ten years or so.**
19   Q   And what about ES232 introduction to
20 electronic circuit?
21   **A   About the same time period.**
22   Q   Let me go to the transmission systems
23 and multiplexing, ESE571.
24   What about that class?
25   **A   So this is a graduate level course**

18

1 **related to communication networking. I taught**
2 **this class many times, 2000s, 2010s and as well as**
3 **maybe two or three years ago.**
4   Q   And what you do, what did you teach in
5 that class?
6   **A   Lat of recording. So like gamma**
7 **recording was part of it because transmission line**
8 **takes a line level and, also, the physical level**
9 **in according, so we did a lot of different type of**
10 **encoding and multiplexing structure and how to do**
11 **framing work an approximate portion of swiveling**
12 **work as well.**
13   Q   Let me just confirm you said ES571 was
14 a graduate-level course.
15   **A   Yes.**
16 **BY MR. MILLER:**
17   Q   We're going to go just go through your
18 report. Keep it -- keep it, I was going to say
19 keep it simple but I will be pointing to various
20 paragraphs in in your report and ask you question
21 for those just get a general, a better
22 understanding of your opinion.
23   Is that fine with you?
24   **A   Sounds good to me, thank you.**
25   Q   Let me start out here. Let's go to --

19

1 let's go to page 11. I want to look at your --
2 this general level of ordinary skill in the art.
3 So paragraph, we'll look at paragraph 23.
4   23 Dr. Min I'm just confirming Dr. Min
5 you reviewed the '305 patent and the '788 patent,
6 correct?
7   **A   Yes.**
8   Q   And in reviewing those patents, were
9 you then able to come up with what you believe
10 would be the person of ordinary skill in the art?
11   **A   Yes.**
12   Q   And in paragraph 23 includes your
13 proposed definition; is that right?
14   **A   That is correct.**
15   Q   I just want to ask, what do you mean by
16 three years of experience in circuit design or
17 display technologies?
18   **A   In my opinion, I'm very proud of my**
19 **students in the program but as good as what I**
20 **believe someone like those who graduate with a W**
21 **degree from Washington University they do need**
22 **certain insight into a particular technology and**
23 **as recited here, as in invention in 305 and '788**
24 **patent, I believe to appreciate and be able to**
25 **practice the invention disclosed in these two**

20

1 **patents, three years of experience would be**
2 **someone of ordinary skill in the art in circuit**
3 **design. And semi-coding technologies, such as**
4 **gamma correction.**
5   Q   Would that include someone, I'm
6 assuming that would be when you gave your critique
7 on, like, the elementary people, you're talking
8 about the young people who have taken your ES230
9 classes?
10   **A   I don't really have a criticisms for my**
11 **students. They are all very smart. They're all**
12 **meant to do their best. Follows always turn out**
13 **as expected, but, Yes. That's correct.**
14   Q   And I say such POSITA, a person of
15 ordinary skill in the art would have had knowledge
16 of integrated circuits, gamma corrections and
17 stored gamma correction voltage values within
18 memory.
19   Can you explain what you mean by its
20 knowledge of storage of gamma correction voltage
21 value within memory?
22   **A   So, gamma correction is a well-known**
23 **term in display technology and to do -- attached**
24 **to actual display itself in the display system**
25 **such as, you know, TVs or computer screens, and**

21

1 those values will be stored somewhere and to -- a
2 different form, and once the display is activated
3 by turning on the device or refreshing, what have
4 you, and the stored value will be applied to the
5 display to make the correction as required.
6   Q   No, I'm asking -- let me ask it another
7 way. I'm asking, you said that a person of
8 ordinary skill in the art would have knowledge of
9 it. So I'm trying to understand what do you mean
10 by they have of the knowledge of storage of gamma
11 correction voltage values within memory?
12   A   By that, I mean those who are skilled
13 in circuitry and any type of values or parameters
14 used as a part of the circuitry would be stored in
15 some form or fashion, or hardcoded, such as
16 device, you know, like, opposed to storing the
17 gamma correction value in some form of a
18 nonvolatile memory, they could actually have a
19 resisted divider circuit. So there are different
20 ways to fix that, and the people who design
21 circuitry would know, generally, how those values
22 are stored or implemented as a part of circuitry.
23   Q   And that would be something that they
24 would have known that at the time of the invention
25 of the asserted patent?

22

1   A   Yes.
2   Q   Let's go to paragraph 13, page 8 of
3 your report.
4   A   Okay.
5   Q   Paragraph 13, page 8 of your report.
6   Give you a chance to review this,
7 Dr. Min. But paragraph 13, is that the general
8 summary in your declaration, Exhibit 1, of the
9 materials that you reviewed and considered in
10 putting together your declaration?
11   A   Yes. So what this says is I have --
12 when I cite to certain extrinsic evidence, for
13 example in my report there's some data sheets and
14 so forth. When those citations were made, I
15 specifically cited those references as a part of
16 the declaration itself. So what is stated here is
17 sort of like the basic material such as the
18 patents and patent file history and some of the
19 legal documents such as the proposed terms for
20 construction by both parties.
21   So here's more general settleable
22 material that I relied on.
23   Q   In preparing your declaration, just
24 trying to confirm, did you review -- let me ask
25 another question. Strike that.

23

1   Are you aware that the Court in Eastern
2 District of Texas, in the Wistron litigation
3 provided a claim construction order involving the
4 '305 patent?
5   A   That is my understanding. I've not
6 really spend a lot of times reviewing the records,
7 but that is my understanding.
8   Q   You said you didn't spend a lot of time
9 reviewing them. I'm curious did you review or
10 consider that order in preparing your declaration?
11   A   Not in any specific. I just was made
12 aware that there was a claim construction in a
13 separate case that preceded this particular
14 litigation.
15   Q   I'm just curious, Dr. Min, why didn't
16 you review it and consider it, since it was a
17 prior order from the court?
18   MR. JOHNSON: Objection.
19   A   Why didn't I? I was asked to provide
20 my opinion for the meaning of all claim term as
21 understood by one of our skill in the art at the
22 time of invention, that's what I did. Paragraphs
23 I could have, but I didn't think it was necessary
24 for me to provide my opinion in that regard.
25   Q   You didn't think it was necessary to

24

1 review the same court that we're in, the court's
2 prior interpretation or understanding of the '305
3 patent?
4   MR. JOHNSON: Objection. Form.
5   A   Perhaps it's legally relevant, but
6 providing my opinion as to what a particular claim
7 term would have been meant to one of ordinary
8 skill in the art at the time of an invention would
9 be my opinion. So that's what I did in this
10 declaration.
11   Q   By any chance did you review -- are you
12 aware -- strike that. Ask another question in
13 another form.
14   Are you aware that Innolux filed IPRs,
15 inter partes review, petitions, concerning the 788
16 and the '305 patents?
17   A   I am aware of that, yes.
18   Q   In preparing your declarations, did you
19 review Innolux's petitions and related filings in
20 that IPR -- in those IPRs?
21   A   No. I did not.
22   Q   I'm going to go to paragraph 14, which
23 is right under 13. Paragraph 14. You're right
24 there.
25   And, Dr. Min, I just want to confirm

25

1 here, we acknowledge that you're not a lawyer?
2   **A   I'm not a lawyer.**
3   Q   And you do not intend to offer any
4 opinions on the correct interpretation of the law,
5 correct?
6   **A   Yeah, that's correct.**
7   Q   And I just want to confirm, the legal
8 standards are any applications of law that's
9 contained in your declaration, was that based on
10 information that was informed to you from
11 Innolux's counsel?
12   **A   Yes; that's correct. If I may, just to**
13 **add a little clear here I was involved in a number**
14 **of litigations similar to this prior and, you**
15 **know, I come to obtain certain prior knowledge and**
16 **I just want to let you know that it is impossible**
17 **for me to -- not to know what I already know. So**
18 **my knowledge comes from them, but I follow the**
19 **guideline provided by Innolux's counsel in this**
20 **matter.**
21   Q   Can you elaborate on that a little bit
22 more? What do you mean by that?
23   MR. JOHNSON: Objection to form.
24   **A   The Innolux attorney, including**
25 **Mr. Johnson sitting here in this room, has**

26

1 **informed me the various laws or legal standards**
2 **that I need to follow. But as I said, and I**
3 **follow the guideline. But in my background I have**
4 **done work similar to this before, so I have prior**
5 **knowledge as well. That's really all I was**
6 **saying.**
7   Q   So would that include, I guess, your
8 interpretation or your prior interpretation of
9 said need plus function claims?
10   **A   Yes.**
11   Q   As to whether or not you believe a
12 claim is indefinite?
13   **A   Yes.**
14   Q   We're going to go to paragraph 28,
15 page 12 of your report.
16   MR. MILLER: And then I want to bring
17 as Exhibit, let's do Exhibit 4. This should be
18 the joint claim construction and prehearing
19 statement.
20   PLANET DEPOS TECHNICIAN: One moment.
21   MR. MILLER: Docket 81.
22   (Exhibit
23 #   marked for identification and
24 attached re
25 tained}.)

27

1   Q   And Dr. Min, do you recognize
2 Exhibit 4, which is titled joint claim
3 construction and prehearing statement. Do you
4 recognize that document?
5   **A   Yes, I do.**
6   Q   Now we can go back to Exhibit 1, page
7 12, paragraph 28.
8   Dr. Min, paragraphs -- second paragraph
9 of this, you say I've reviewed and agreed with
10 Innolux Corporation he is claim construction
11 positions regarding certain claims in the patent,
12 local Rule 4-3 discloses dated May 8th, 2025.
13   Just trying to confirm Dr. Min, that
14 statement, is that statement referring to
15 Exhibit 4?
16   **A   Yes. And I also -- I mean, the**
17 **attorneys representing Innolux and I also had**
18 **discussions as well so it's not just come from the**
19 **joint statement, but, also, our discussions as**
20 **well.**
21   Q   What do you mean "discussions"?
22   **A   Before I put together the declaration,**
23 **I conferred with Innolux's counsel and discussed**
24 **the claim construction position that was stated in**
25 **the joint statement, as well as the general**

28

1 **discussions.**
2   Q   I'm just trying to understand what
3 general discussions are you referring to? Are
4 they in the report or your declaration?
5   **A   No. Just to -- with respect to the**
6 **claim construction positions. That's what I**
7 **meant.**
8   Q   All right. I just need to speak to
9 counsel real quick.
10   MR. MILLER: Counsel, I'm about to walk
11 through each one of these terms. I don't know if
12 you want to take, like, a five-minute break or are
13 you fine, Dr. Min or Mr. Johnson?
14   MR. JOHNSON: Completely up to him.
15   THE WITNESS: I'm good to go. I'm not
16 going to speak for everybody.
17   MR. JOHNSON: We'll keep going.
18   MR. MILLER: All right. Let's do it.
19 BY MR. MILLER:
20   Q   Okay. We're going to, all right,
21 Dr. Min, we're going to walk through some of your
22 opinions as it relates to some of these terms that
23 are in dispute in the 305 and 433 [sic] patents.
24   **A   Did you mean '788 patent?**
25   Q   305 and '788 patent. Thanks for

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1 correcting me if I said it wrong.
2   Before I start here, Dr. Min, did you
3 get an opportunity to review the agreed claim
4 constructions by the parties?
5   **A   Yes. I saw the list of all agreed**
6 **construction as well.**
7   Q   Did you review those?
8   **A   Yeah.**
9   Q   All right. Do you have any -- do you
10 agree with the parties' agreed constructions?
11   **A   I have not really spent time to analyze**
12 **my interpretation with regard to the agreed upon**
13 **constructions. So sitting here I have no opinion**
14 **to offer.**
15   Q   Are you aware, by any chance, that the
16 parties' agreed constructions with the
17 exception -- sorry, that are the parties' agreed
18 constructions as relate to the '305 patent, they
19 come from the Court's prior claim construction
20 order in the Wistron litigation.
21   **A   That is my general understanding, but I**
22 **have to specific terms that comes to my mind.**
23   Q   Let's talk a little bit about
24 nonvolatile storage cells.
25   Do you teach -- in your classes at

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1 Washington University St. Louis, do you teach any
2 classes that discuss nonvolatile storage cells?
3   **A   Yes, I do.**
4   Q   What are nonvolatile storage cells,
5 drink?
6   **A   Nonvolatile means the data stored in**
7 **the sale stays on even if you revenue the power to**
8 **the cell. And cell here is general term to**
9 **describe the context of memory, of course.**
10 **Something that stores a certain amount of**
11 **information, certain information.**
12   Q   Can a non-volatile storage cell be
13 designed to store digital information?
14   **A   Certain type of non-volatile storage**
15 **cell would. Not all.**
16   Q   But they can, correct?
17   **A   Certain types can, yes.**
18   Q   As we say "certain types," what do you
19 mean by certain type?
20   **A   There are digital memories made from**
21 **nonvolatile cells, like flash memories, or EEPROM,**
22 **that's E-E-P-R-O-M, all in capital. They will**
23 **store digitized information. By that, most**
24 **typically, 1s and 0s. But sometimes you could**
25 **have multi-bit symbols that you can store. But**

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1 **information stored, digital representation of the**
2 **actual value, or value to be approximated, at**
3 **least.**
4   Q   Dr. Min, I just want to confirm here,
5 when you reviewed the specifications of the '305
6 patent, self as it related to nonvolatile storage
7 cells, let's look at your discussion in paragraph
8 30.
9   I want to confirm here, are you
10 referencing the embodiment in the specifications
11 here, when you say this specification explicitly
12 identifies the memory elements as programmable
13 analog floating gate memory cells 330 through 337
14 and analog storage cell?
15   **A   If it's paragraph 32 of 37.**
16   Q   I'm looking at paragraph 30, paragraph
17 30?
18   **A   Yeah, so in paragraph 30 I'm referring**
19 **to what is described the specification.**
20   Q   And when you say "was described in the
21 specification," are you referring to an exemplary
22 environment that's in the specification?
23   **A   That would be correct. In this**
24 **paragraph 30, that's what I'm talking about, yes.**
25   Q   Also in paragraph 31, that's an

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1 embodiment, correct?
2   **A   Once again, I'm describing here, in**
3 **paragraph 31, what is stated or described in the**
4 **embodiment as a practicable specification.**
5   Q   We're going to jump to paragraph 34.
6 This would be page 14, page 15?
7   **A   Yes.**
8   Q   I'm just trying to get a general
9 understanding of your positions in paragraph 34.
10   **A   Yes, I have this for you paragraph 34.**
11   Q   Can you explain paragraph 34 to us?
12   **A   So, if the nonvolatile storage cell**
13 **was -- I'm still describing the embodiment that's**
14 **shown, for example, in figure 3 of the '305**
15 **patent.**
16   **So, nonvolatile storage cell in**
17 **question, the numeral 330, 331, to 337, and here,**
18 **if this nonvolatile storage cell, 330 through 337,**
19 **were digital memories, like a flash memory or**
20 **EEPROM, then the values there would be some -- as**
21 **some binary numbers, 10110. If that comes out I**
22 **cannot only drive or go through the drive of 340**
23 **and then through driver 347 respectively, and then**
24 **drive is a channel 0 through channel 7, connected**
25 **to the panel. You cannot drive the display panel**

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1 with 1s and 0s. You need to a voltage. And to do
2 that, if these memories -- the storage is a
3 nonvolatile storage cell, 330 through 337 were
4 outputting 1s and 0s, you could not fully drive
5 that panel through this reference correction good
6 get you'll need conversion of this digital values
7 to analog voltage value to do that. And what I'm
8 saying is there is no description and this channel
9 0 through channel 7 on Figure 3, just to take it
10 back to Figure 2, in Figure 2, the channel zero
11 through channel 7 are shown two places, gamma
12 reference controller 210, and gamma reference
13 controller 220, and channel 0 through channel 7.
14 In both cases gets connected to a source driver
15 that is attached to the TFT panel 280, without
16 having any gateway converter and this would not
17 work if the values stored in nonvolatile storage
18 cells were digital values.
19   Q   All right. I got that. And then you
20 go on and say, so this configuration, I'm assuming
21 that you're talking about from what you're
22 speaking here, figures in, saying in the exhibits,
23 the patent exhibits, you say this configuration
24 would contradict the explicit language in claim 1
25 which requires drivers connected to stayed storage

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1 cells?
2   A   I'm sorry, which paragraph are you
3 reading, pleasing?
4   Q   I'm on the last sentence of paragraph
5 34.
6   A   34. Okay.
7   Q   Yes, sir.
8   A   Yes. That's correct.
9   Q   And did you explain what you mean by
10 that, by that last sentence in paragraph 34?
11   A   That's what I just said. If
12 nonvolatile storage cell 340 -- or 330 through 337
13 were digital memory cells, such as flash memory so
14 EEPROM, then they would go to driver and then
15 become this panel output CH0 through CH1 and
16 connected to the panel. And that the claim
17 language says the drivers connected to said
18 storage cell, that would not work. And drivers do
19 not take 1s and 0s, you take a value and then the
20 value that is value is the actual voltage value
21 and that goes into the driver and gets connected
22 to the panel so. That would not make sense.
23   Q   All right. So are you reading the
24 claim language, and we'll talk about this later,
25 but I mean, we can talk about it now. Is your

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1 interpretation of this based on the fact that when
2 it says drivers connected to said storage cells
3 there has to be some direct connection?
4   A   Yes. That is correct.
5   Q   So we can't -- it can't connect to
6 something through something else.
7   A   Not -- no, not in the context of the
8 '305 patent and '788 patent, no.
9   Q   We're doing two things at once. We're
10 talking about the storage. We are talking about
11 drivers connected to the said storage cells.
12   So let's pull up, I just want to know
13 if you consider --
14   We'll pause that. I'm going to go back
15 to that driver connected to said storage cells I'm
16 jumping around here. Trying to keep the record a
17 little cleaner.
18   It's nice. All right. So let's pull
19 up, so you had your position on drivers connected
20 to said storage cells it's your position it had to
21 be connected it County be through something.
22   Have you considered, in the '305
23 patent, claim 8? Just the language of claim 8,
24 where it says an output pin connected to an output
25 pin through a second multiplexer?

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1   A   If this is a claim 8 --
2   Q   Yeah, last --
3   A   Claim 8. I read that.
4   So in this case, it is explicitly
5 stated the connection has something in between.
6 So it makes it clear. But when it comes to
7 describing this particular -- the configuration as
8 stated in the paragraph 34, the last sentence,
9 that -- there, here, it's actually in the
10 specification directly says that. The
11 specification says this, I'm going to refer to
12 '305 patent. Part of the paragraph that starts at
13 line 46, column 1, regarding Figure 1. And here,
14 the last part of the paragraph starting from
15 line 57, you know, we're talking about all this --
16 the connection made it to the -- this is GM
17 numbers, and the last sentence says since the
18 loading of the source drivers 110, 111, 112,
19 changes dynamically, it is not possible to simply
20 connect the resist (indiscernible) drivers or the
21 resistors listed to the input of the source
22 driver, and then it says some type of buffering
23 on -- used, such as the gamma reference for IC70
24 and 171.
25   It's just a cell. Simply connect means

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1   just connected. This is with regard to Figure 1,
2   the prior art embodiment. Just making the
3   connection there is not going to work you have to
4   have some kind of intermediate. This make it
5   really clear when the patent describes something
6   is connected to something else, that means making
7   the connection directly, not anything between.
8   In contrast to claim 8 you just
9   described, explicitly explained that the
10   connection has something in between. So that
11   makes it clear.
12   Q   So claim 8 says an output can be
13   connected to an output through something else.
14   And you're stating that that language
15   contradicts your position where you're saying that
16   connected to has to be directly?
17   A   No.
18   Q   To connect?
19   A   No.
20   Q   You don't think.
21   A   No, it does not. What this last
22   limitation of claim 8 is saying is and it says
23   outpin is connected to a second multiplexer which
24   is, in turn, connected to an output. That's what
25   the -- what this sentence you just read from,

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1   claim 8, you're referring to. When it says an
2   output pin connected to an output through a second
3   multiplexer, that means output pin connected to a
4   second multiplexer, which is connected to an
5   output.
6   So that's exactly what I said. When
7   there's a -- the sequence of connection, that's
8   exactly what the claim language is describing.
9   Q   So in your analysis of the drivers
10   connected to storage cells, did you consider the
11   language in claim 8?
12   A   I mean I read claim 8 also.
13   Q   I'm asking did you consider -- did you
14   consider the use of connected to in your analysis
15   of connected to?
16   MR. JOHNSON: Objection.
17   Q   In claim 1?
18   MR. JOHNSON: Objection. Form.
19   A   Yes, I have considered the patent as a
20   whole, including all claims.
21   Q   And we are -- the claim language is
22   connected to and is coupled to T. but throughout
23   the patent, there are numerous source descriptions
24   says something is, something connects to
25   something. So, as opposed to something -- A is

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1   connected to B, there are numerous places that
2   says B connects to A, in direct form. And
3   everywhere it is stated that way; the description
4   is consistent. When something connects to
5   something else, or something is connected to
6   something else, in both cases, the connection is
7   direct connection.
8   Despite the fact that claim 8 says a
9   connected to B through C?
10   A   Well, as I just mentioned, A is
11   connected to B through C, as and in between
12   through C. So that means A is connected to C,
13   which is connected to B. That's what that
14   statement is saying.
15   Q   All right, Dr. Min. We'll justing
16   going back and forth on that one.
17   All right, let's go back to your
18   statement in the nonvolatile memory in paragraph
19   35 on page 15.
20   I'm trying to understand your position
21   here. You say the integrated circuit of claim 1,
22   where it says nonvolatile storage cells hold
23   analog voltage values, you're referring to claim
24   4?
25   A   Yes.

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1   Q   All right. So isn't -- claim 4 is a
2   dependent claim of claim 1, correct?
3   MR. JOHNSON: Objection.
4   A   Yes. That's correct.
5   Q   And claim 4 explicitly states that the
6   nonvolatile storage cells hold analog voltage
7   values.
8   I'm trying to understand how you are
9   looking at this to form your next statement here,
10   that you say that this explicit statement that the
11   cells hold analog voltage dictates the
12   interpretation arrived in claim 1?
13   A   I'm just stating that the dependent
14   claim explained further, not just to hold analog
15   value, the dependent claim 4 has the two parts,
16   the nonvolatile storage cells hold analog values
17   and then says "which are a constant value of said
18   gamma voltages signal." So by the time what was
19   in the analog, the nonvolatile storage cells gets
20   applied to the panel, there's some kind of a
21   factor M. That's M, as in letter M, capital.
22   That's what the patent describes.
23   So this portion is really talking about
24   that.
25   As I read it, as I mentioned just

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1 reading claim 1 only saw the language something
2 like a driver connected to such storage cells so,
3 that's the last sentence in paragraph 34.
4   It tells you that what is stored in the
5 nonvolatile storage cells as recited in claim 1 is
6 analog memory cells.
7   In addition to that, so, claim 1, on
8 its own, makes it clear the nonvolatile storage
9 cells cell is an analog cell, but claim 4, for the
10 add that the analog voltage that's stored in the
11 nonvolatile storage cells is some kind of
12 fraction, constant fraction of an actual gamma
13 reference voltage signal that is going to be
14 applied to the panel, which the patent describes
15 as factor M, capital M.
16   Q   Then you go on in paragraph 36?
17   A   You then reference claim 6. And I just
18 want to confirm from claim 6, claim 6 does not
19 contain the term nonvolatile storage cells,
20 correct.
21   So it doesn't really use the term
22 nonvolatile storage cells in claim 8.
23   Q   Let me just is a it's a yes or no
24 question. Does it or does it not contain the term
25 nonvolatile storage cells?

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1   A   It does not.
2   Q   All right. Dr. Min, what is a
3 multiplexer?
4   A   So to be clear, are you referring to
5 specifically as a claim term that is recited in
6 the claims? Is that what you're referring to.
7   Q   I'm referring to just, you know,
8 you've -- you teach a class -- we just talked
9 about bit. Just go back. You teach a class,
10 ES571, it's entitled Transmission System
11 multiplexing.
12   I'm just curious, what do you
13 understand a multiplexer to be? What is a
14 multiplexer?
15   If you want to know, for the record,
16 we're on page 23, if you want to -- we can go from
17 there.
18   A   Yeah.
19   Q   But I'm asking you, Dr. Min.
20   A   So, there is a two approaches to answer
21 that question. There's a former, like a strict
22 guideline saying what a multiplexer, as opposed to
23 the multiplexer is.
24   Multiplexer, basically, makes multiple
25 signals, making it to a combined one. That's

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1 multiplexer. So it's many two to one, mapping.
2 Demultiplexer goes the other way, you go one
3 combine signal and break them apart to its
4 component signals. So that's a demultiplexing.
5 That's a formal definition of multiplexer and
6 demultiplexer.
7   Sometimes we are -- the engineers are
8 lazy, I guess, and particularly when we use the
9 term mobs. Sometimes the term motor vehicles is
10 use to basically correspond to either one of those
11 two. So, multiplexer or demultiplexer.
12   Q   So mux, does a mux, many to one, or one
13 to many, does a mux have some type of
14 functionality?
15   MR. JOHNSON: Objection. Form.
16   Q   I would assume it would be more -- does
17 it have some type of selecting functionality?
18   A   No. Multiplexers have a very --
19 multiplexers is not like switches, switches are
20 much more sophisticated. Multiplexers perform
21 either many to one, which is a traditional and
22 more formal definition of a multiplexer, or --
23 either that or basically going to other way, one
24 too many, from the one signal and split them apart
25 two component signals on a demux -- demultiplexer

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1 manner. Either one of those two. And
2 multiplexers are not doing anything more than
3 that. And that configuration affects whatever the
4 instance of the multiplexer deploying on
5 implementation means.
6   Q   So what's the function? How does it go
7 from many to one?
8   A   You need -- so there are different ways
9 to do it. You can do some kind of fixed mapping.
10 So multiplexing could be, like loaded on to some
11 kind of form later that says okay when you
12 multiplex you put this information first followed
13 by that information, followed by that information.
14 Like from the different compartment -- the
15 components that are coming into the multiplexer
16 and that mapping is done. And fixed in the
17 configuration of a multiplexer and then you make
18 that combination of a multiplexer component into
19 one. Either that or you could do more like an
20 address electable, like on the fly, you can
21 actually take a different -- like this is the
22 embodiment shown in '305 patent, basically based
23 on the -- a particular selection, you can actually
24 take turns to, according to that, the control
25 inputs to make that multiplexing pairing done. So

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1 that's how the multiplex something done. And
2 demultiplexing is done in a similar manner but in
3 opposite direction.
4   So when you have one combined stream
5 coming in, either you can have a fixed pattern
6 that is configured for the demultiplexing function
7 of the multiplexer to go in there and pattern it
8 which, okay, so which portion of this combined
9 signal goes to which components to be broken out
10 to. Or you can do it in like some kind of control
11 mode, like a selecting, actually, addressing mode.
12   But in either instances, the
13 configuration is fixed. Either it is a
14 multiplexing function or it is a demultiplexing
15 function, one of those two. You don't change the
16 mode between these two.
17   Q   Is the multiplexer a serial bus?
18   A   No, it doesn't have to be. It can have
19 a parallel bus coming in. But still the parallel
20 bus will -- if the multiplexer is doing a
21 multiplexing function, it will be each of the
22 inputs corresponding to the component signals,
23 they could be parallel.
24   Q   So what is the function of a serial
25 bus?

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1   A   It depends on --
2   MR. JOHNSON: Objection to form.
3   A   Depending on what serial bus is.
4 Serial bus it means so the data is coming in or
5 data is -- data transversus over serial bus in
6 serial form, bit by bit.
7   Q   And, Dr. Min, are you aware that
8 Innolux is -- Innolux's preposed construction is
9 the construction from the Wistron litigation; are
10 you aware of that?
11   A   I was not aware of that fact, that this
12 was from the Wistron litigation. No, I was not
13 aware.
14   Q   I'm bring that up because it was a
15 hearing that was involved with that and it was the
16 hearing transcript that pertained to how -- they
17 discuss how the parties reached that agreement on
18 that construction.
19   But now I just want to turn to and get
20 a better understanding. What is your opinion with
21 Phenix's proposed construction?
22   MR. JOHNSON: Objection to form.
23   A   So what I see, when you -- and I
24 understand when you say Phenix's construction, I
25 understand that to be at the bottom of page 23.

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1   Q   The proposed construction I'll be more
2 specific is on page 23, that you have typed there.
3 And Phenix as proposed construction right under
4 multiplexer, the one that you drafted here?
5   A   Yes. So you have the term
6 "selectively," and I read this as multiplexer
7 according to Phenix's proposed construction can
8 be -- can operate as a multiplexing, as in many to
9 one, this is number 2 of the -- as in, like, one
10 of many inputs, or one sets of many sets of input
11 of one output or more sets of output. So that's
12 the multiplexing function. And then,
13 demultiplexing function is number 1, which is one
14 input or one set of input to one of many outputs,
15 or one set of many sets of outputs that a
16 demultiplexing function.
17   Somehow a single device multiplexer can
18 do both of this, depending on the selection,
19 there's no multiplexer that does that. And there
20 no embodiment that's shown in the patent and this
21 is not what the term multiplexer mean to all the
22 skill in the art. Even we allow the lazy practice
23 of the use of multiplexer to include both
24 multiplexing function and demultiplexing function,
25 the multiplexer can do and does one of those two,

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1 not --
2   Q   So let me -- that's -- I thank you for
3 your report. Now you made me look at our proposed
4 construction in a different way. And I thank you
5 for that.
6   A   Okay.
7   Q   So to your reading, Phenix's proposed
8 construction is to say one or more circumstance
9 selectively coupled and you say selectively
10 coupled a multiplexer are selectively couple a
11 demultiplexer?
12   A   So the coupler is either doing the,
13 number 1 or number 2, right? So that's what
14 the -- that's what the -- the proposed
15 construction in the Phenix's proposed construction
16 says. You can couple according to number 1, she's
17 showing this construction, or according to number
18 2.
19   But you also added, the Phenix also
20 added selectively, in other words, a multiplexer
21 device can do one of these two, depending on what
22 you select the device to do. That does not
23 happen. There's no multiplexer that does that.
24 And --
25   Q   I thank you very much, Dr. Min we'll

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1 probably have a conversation with your counsel
2 about that. Because I don't think we -- I just
3 want to get from you is do you agree that a
4 multiplexer, again, does a multiplexer have some
5 type of selecting functionality?
6   MR. JOHNSON: Objection to form.
7   **A   Selecting function with regard to what**
8 **mode it is doing the multiplexing or**
9 **demultiplexing. That selection does not exist.**
10   Q   So it is your opinion that the
11 multiplexer, this is the multiplexer when it goes
12 many to one, it is no type of selecting
13 functionality in it to decide which many to one in
14 the multiplexer?
15   **A   No, that's not what I am saying.**
16 **Because it is a selectively couple. It's a**
17 **selectively on the couple. And the coupling is**
18 **either one or two, right? You list option 1 or**
19 **option 2. That's what the construction says.**
20   **You either -- you couple it according**
21 **to 1 or you couple according to 2. And then --**
22   Q   No, I'm not -- Dr. Min, I'm not asking
23 about the construction. I'm asking about,
24 generally, multiplexers and the functionality of
25 multiplexers. I'm asking you to get an

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1 understanding of, you have many to one, are we
2 talking about multiplexer or are we talking about
3 demultiplexer one to many? Within that
4 multiplexer, is there some type of functionality
5 that allows it to select, from that many to one.
6   So, you have, say you've got four going
7 in and it's coming out with one of the four. Does
8 the multiplexer, does it have some type of
9 functionality that allows a selection of those?
10   **A   Yeah, yeah. So within a combined of**
11 **one particular multiplexing function, you can**
12 **dynamically get a generator pattern of the**
13 **multiplexing. So I wouldn't call it a selectivity**
14 **coupling. I would say dynamic control or**
15 **sometimes called dynamic multiplexer. You do that**
16 **in real time. So you can do that.**
17   Q   All right. Thank you very much.
18   All right Dr. Min, we can jump to '788
19 patent. We're jumping to page 33.
20   Talk about your opinion on gamma
21 reference control capabilities.
22   **A   Yes.**
23   Q   In your opinion, what is the '305
24 patent directed to?
25   **A   '305 patent is generally directed to, I**

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1 **think the gamma correction on a TFT panel, but in**
2 **some very particular way. And it criticizes as a**
3 **background prior art existing and this is part of**
4 **the background. And then it also criticizes some**
5 **of the content rather at the time of the '305**
6 **patent, some digital-based approach.**
7   **Which involves a number of additional**
8 **components. So it -- at the end -- this is column**
9 **2, starting from about line 7, so the previous**
10 **conventions. And this is what the sentence is**
11 **saying, both inventions teach quite complex**
12 **digital approaches to this analog problem, so**
13 **analog problem being the gamma correction, the**
14 **voltage applied as analog value.**
15   **So -- and then the both of the previous**
16 **prior art was extensive so what line 10 or column**
17 **2 is designed to gamma reference architecture that**
18 **ought mates gamma adjustment and provides**
19 **programmable capability and achieves acceptable**
20 **cost. And this acceptable cost comes from not**
21 **utilizing the digital approach to the analog**
22 **problem which is the gamma correction.**
23   Q   And what about the '788 patent?
24   **A   I mean, it's a very similar, but not**
25 **identical -- identical -- I didn't do like a line**

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1 **by line comparison but specification very similar.**
2 **Here the independent claim recites to calibration**
3 **of liquid critical tall drive and then using the**
4 **gamma correction. And, once again, utilizing this**
5 **analog, the storage cell and then you have to**
6 **optical sensors that's basically feeding back the**
7 **correction.**
8   **So, that's what '788 patent is.**
9   Q   All right. We're looking at the '788.
10 We're in the '788 patent here. I'm going to go
11 through a few things here. We've got -- go to
12 page -- you can pull it up if you want to.
13 Exhibit 3, make it simple, Exhibit 3. We're going
14 to look at row 2, looking at the summary of the
15 invention. And it says the invention is a
16 programmable buffer integrated circuit which can
17 be programmed to output a set of gamma correction
18 voltages to be used in LCDs, one programmed the
19 buffer will continuously output the program value,
20 the power is removed, and it's a voltage value
21 that is stored in nonvolatile programmable memory
22 gamma correction is retained. The device
23 incorporates program interface to allow the
24 programming of the buffer outputs to the desired
25 values during manufacturing and test of the panel.

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1 Multiple sets of gamma values can be programmed
2 and stored to provide optimized gamma correction
3 curves for different user or application
4 requirements.
5   Did I read that correctly?
6   **A   I think so. Yes.**
7   Q   And earlier, you stated, when you gave
8 a general summer of the '305 and the '788, you
9 said that the '305, at least, had a gamma
10 reference on the TFT panel, correct?
11   That's what you stated, right?
12   **A   Yes.**
13   Q   All right.
14   **A   Because the field of invention is the**
15 **TFT and the liquid contrast -- yeah, okay. And**
16 **there is particularly to TFT. But the restriction**
17 **to TFT is not necessarily. The LCD panel works in**
18 **a similar way.**
19   Q   All right. So, what we're looking at
20 is we kind of agree it is at least some type
21 programmable buffer integrated circuit that can be
22 used in an LCD panel, generally?
23   **A   Yes, that's correct.**
24   Q   And it can be programmed to output a
25 set of gamma correction reference voltages to be

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1 used in those panels, right?
2   **A   Yes. That's correct.**
3   Q   Okay. So I just want to go back. We
4 have some embodiments in here, too. You talked
5 talking about some of the embodiments. You talked
6 about, you know, talked about Figure 2. In
7 Figure 2, it was an architectural design, and you
8 have Figure 3 you reviewed Figure 3, Dr. Min?
9   **A   Yes.**
10   Q   And that is, what, a gamma reference
11 control of 300, correct?
12   **A   Yes. That's correct.**
13   Q   All right. And then gamma reference
14 controller, it comprises a programming engine or
15 interface and a multiplexer, programmable analog
16 floating gate memory cells through drivers,
17 correct?
18   **A   That's correct.**
19   Q   All right. And then we also have in
20 here we've got a figure 6 as well?
21   **A   Yeah.**
22   Q   All right. So I -- so let's look at,
23 going to 788, let's look at claim, we're going to
24 go to column 7. And we're going to look at some
25 of the claim language here. Look at claim

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1 limitation 1A. We're going to look at claim
2 limitation 1E.
3   **A   Okay.**
4   Q   All right. Claims limitation 1A says
5 providing saddles play gamma reference control
6 capability which is electronically reprogrammable
7 and nonvolatile.
8   And we have claim 1E. The storage says
9 gamma reference voltage level and says gamma
10 reference control capability.
11   Looking at this, this general
12 discussion about specification, trying to get from
13 you -- understand from you. Is that -- is it
14 possible that that providing set display with
15 something, can that providing said display, that
16 gamma reference control capability, could that be
17 the integrated circuit that's discussed in the
18 specification?
19   MR. JOHNSON: Objection to form.
20   Q   Specifically, the circuit of Figure 2
21 and the circuit of Figure 6? I'm sorry, Figure 3.
22 My apologies, Figure 3 and Figure 6. I mean, you
23 agree the summary of inventions, as you stated, is
24 a programmable buffer-integrated circuit which can
25 be program to outcome a set of gamma correction

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1 references to be used in a liquid crystal display,
2 which is panel.
3   **A   Yes. That I agree. But let me know**
4 **just read the question described here in my**
5 **report -- declarations.**
6   **If you look at, I describe this in my**
7 **declaration paragraph 100. And I say here,**
8 **because this term does not really gives or leads**
9 **to a -- some structure to reasonable certainty to**
10 **a POSA, you look at the -- what is described in**
11 **the '788 patent itself. And then I describe here**
12 **as a figure 2, and then look at the program**
13 **interface 230 and the gamma reference controller**
14 **210 and 220.**
15   **So the Figure 3 and Figure 6 you're**
16 **talking about is the gamma reference controller.**
17 **So I describe that. It is -- it is doing what, at**
18 **least some portion of this combined programming**
19 **interface and two gamma reference controller is**
20 **doing what is recited as a -- the claim limitation**
21 **1A, which is -- first of all the 1A is only**
22 **describing the gamma reference controller**
23 **capability as an electrical reprogrammable and**
24 number (indiscernible). And then E is storing the
25 reference voltage level in said gamma reference

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1 voltage capability. It just describes storing
2 this gamma reference voltages and, also, you have
3 to be able to program it. And as you said,
4 figure -- by the way, Figure 2 and Figure 3 are
5 inconsistent because Figure 2 there's a
6 programming interface 230 is not part to a gamma
7 reference controller 220 and 210. But as in
8 Figure 3, the programming engine or interface 310
9 is part of this whole gamma reference controller.
10 They're inconsistent. But what I say here is at
11 least to including using figure 2, the programming
12 interface 230 and 2 gamma reference controller 210
13 and 220, does, at least to the recited functions
14 in claim 1 is found by this structure.
15   But not in practice, just to some part
16 of it. So if we are to look at the specification
17 and Doctor this programming interface and two
18 reference controllers really the one who's doing
19 that recited function then the only possible
20 construction is what is stated here, it's a long
21 proposed construction, which is a separate
22 standalone, nonvolatile device that is
23 reprogrammable. The device including programmable
24 interface and two gamma reference controller
25 physically connected to the programming interface,

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1 the two gamma reference controller being
2 physically connected to the source driver
3 connected to the panel. That's what the
4 embodiment tells you and that's the source of what
5 construction has to be because the term does not
6 meaning as a part of the claim language itself
7 does not give me or give a POSA reasonable -- with
8 reasonable certainty which structure that will
9 actually do this.
10   Q   Okay. So are you now saying that it is
11 a structure?
12   MR. JOHNSON: Objection to form.
13   Q   I'm going to be more specific Dr. Min.
14 I'm just asking you to pick a lane. So is it a
15 structure or is it not a structure?
16   MR. JOHNSON: Objection to form.
17   **A   I think I described in both scenarios**
18 **just reading the claim, it's just boundaries note**
19 **clear. Because what is a gamma -- let's see the**
20 **term here. What is gamma reference control**
21 **capability? I mean, it has to do something more**
22 **than just storing something.**
23   Q   Why? Why? Because I'm going to ask
24 you the question because you're reading -- you're
25 reading the claims --

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1   **A   Yeah.**
2   Q   -- in light of the specifications and
3 your skills as a person of ordinary skill in the
4 art.
5   So just earlier, you gave us an entire
6 description of 788 and the '305 patent, read it,
7 looked at it. And now you go back, you look at
8 the claim. Now, all of a sudden, you're saying
9 you don't see anything in the specification that
10 would encompass providing said display with gamma
11 capability, which is an electronically
12 reprogrammable in a nonvolatile, or something that
13 can store said gamma reference voltage level.
14   I'm confused.
15   MR. JOHNSON: Objection. Form.
16   **A   Let me try to take a second stab at**
17 **explaining. I think the first thing you do is, as**
18 **I understand, as one of ordinary skill in the art**
19 **reading the patent claims, reading the claim**
20 **language first, I have to be able to know what the**
21 **boundary, the scope of the claim 1. And here's a**
22 **term called gamma reference control capability.**
23 **And this is a nonlawyer but ordinary skill in the**
24 **art reading the patent claim, reading. It**
25 **describes it's electrically reprogram and**

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1 **nonvolatile and it stores gamma reference voltage**
2 **level. Those two are the two sort of like main**
3 **features/function that it needs to come. But the**
4 **wording itself, gamma reference controller**
5 **candidate. It has something to do with the**
6 **control in there, right? Storing some values,**
7 **that is not the entirety of the control. So to**
8 **me, reading this terminology, it has to do**
9 **something more than this, but what is required is**
10 **here. So I don't know where the boundary is.**
11   **Am I okay if I'm just to have like a**
12 **nonvolatile storage, like a, you know, analog**
13 **cells or even the flash memory stored at value?**
14 **Is that good enough?**
15   Q   It could be, right, Dr. Min?
16   **A   But then, it says the term, itself, it**
17 says, okay, so, here, method of calibrating liquid
18 crystal display to desired gamma curb to
19 compensate for the panel.
20   So in the context of the claim
21 language, claim 1 as a whole, the gamma reference
22 control capability to a POSA should do something
23 more than this, just than storing the value. That
24 doesn't have the control aspect of it.
25   So I don't know the boundary of this

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1 claim term. And it does not really say anything
2 about the structure in the claim 1.
3   So, if it is a means plus function then
4 I go and take a look at seen if there's a
5 structure that does this. And that's really what
6 I am talking about here.
7   Q   Dr. Min, by any chance did you take a
8 look at Innolux's IPR regarding the '788 patent,
9 see their positions?
10   A I did not and United States that my
11 opinion I just described to you is described in
12 paragraph 94. It has a -- some kind of
13 capability. Not just storing something but it has
14 a control capability. And, to me, it's not just
15 to having the value. You have to do something
16 more. And so it goes on to say, there's no
17 particular structure that just does that. So I
18 have to look at something more to actually provide
19 the capability portion. And if this is not means
20 plus function, which I'm informed to be subject to
21 112F, and I could not find the structure that
22 actually is just recited, then I'll just do
23 generally the gamma reference control capability.
24 What does that mean? There are certain disclosure
25 that describes the structure that describes this.

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1 Then what I found is that. Like gamma reference
2 controller including the program interface. And
3 the program interface part comes from the fact
4 that inconsistency between the figures 2 and 3 and
5 6. So where does the programming interface belong
6 to? They are different. And so, using the
7 programming, the figure 2, the proposed
8 construction is what I have described earlier on
9 that's shown in my report under the heading of
10 gamma reference control capability.
11   Q   All right. So Dr. Min is your problem
12 with this term is the fact that it's just called
13 gamma reference control capability? You're just
14 not comfortable with the name?
15   MR. JOHNSON: Objection. Form.
16   A   The name -- the name is describing
17 something. It has a -- it's some kind of
18 capability that is related to gamma -- gamma,
19 what's the rest, gamma voltage controls. Gamma
20 reference controls. Just one second, please.
21 Gamma reference control capability. Yeah, gamma
22 reference control capability.
23   So it's not just to any capability, but
24 it's a capability that's scribbled by the word the
25 claim term gamma reference control.

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1   Q   I see.
2   A   So this is gamma reference control.
3   Q   All right. I'm speaking -- you're a
4 person of skill in the art so I'm going to speak
5 hypothetically here. So if we were to call
6 this -- if it claim language said providing said
7 display with gamma reference controller which is
8 electronically reprogrammable and nonvolatile,
9 would that be acceptable to you?
10   MR. JOHNSON: Objection. Form.
11   A   Gamma reference controller? I mean,
12 that be would be better but I would still like to
13 see something more description. Something that
14 gives me, I know the structure that is related to
15 the capability as a part of a claim language that
16 tells me the boundary of the claim. Controller,
17 integrated circuit chip, yeah, then it'll be
18 better. But controller, even could be something
19 more than just to chips, controller could be
20 something else. It could even be a software.
21   So -- and I have to be able to know the
22 scope of the claim with a reasonable clarity and
23 this capability does not really give me that
24 clarity.
25   Q   I'm just understanding. So is your

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1 issue with the word capability that's in the
2 claim?
3   A   I mean, the term as a whole, gamma
4 reference control capability. But capability is
5 certainly what triggers it more than anything
6 else.
7   MR. JOHNSON: ERod is this a good
8 stopping place if you're going to switch gears.
9   MR. MILLER: Yeah, we can take a break.
10 How long do you need, 15 minutes, ten minutes.
11   MR. JOHNSON: Just ten minutes is find.
12   MR. MILLER: Okay. Off the record.
13   (Recess taken from   :
14 to   :   )
15   MR. MILLER: Back on the record.
16 BY MR. MILLER:
17   Q   Dr. Min, welcome back.
18   A   Thank you.
19   Q   We're going to talk about the term
20 control circuit.
21   All right. On page, just jump around
22 here. I'll just ask you, Dr. Min, you say that
23 the term control circuit is a term that's
24 generally understood in electrical engineering.
25   What do you mean by that?

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1   A   You're referring to paragraph 102?
2 Could you --
3   Q   If you want to know the specific
4 paragraph.
5   A   Yeah.
6   Q   We can talk about paragraph 107.
7   A   107.
8   Q   Or I can scratch that question, just
9 ask another question.
10   What is a control circuit, you as a
11 professor, what is a control circuit?
12   A   It's a circuitry that controls
13 something, whatever that underlying objective of
14 the control is.
15   Q   Is -- would you say that a control
16 circuit is a structure?
17   A   It is a structure because it's a
18 circuit. So, when I hear the term "control
19 circuit," it has some boundary that
20 (indiscernible). I cannot be, like, a
21 (indiscernible) period, it's a circuit.
22   Q   And we can go to paragraph 107.
23   A   Okay.
24   Q   I'll just let you review paragraph 107.
25   A   Okay.

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1   Q   I just want you to elaborate on
2 paragraph 107. I'll give you a chance to look at
3 it and then I will read through it.
4   A   Yeah.
5   Q   All right.
6   A   I just read it.
7   Q   Okay. So when you say that the term
8 control circuit is a generally understood term in
9 electrical engineering, what do you mean by that
10 statement?
11   A   It's some circuitry, as I mentioned to
12 you, that does control of some -- according to
13 some objective. But what I am saying in this
14 paragraph is as a part of -- recited as part of
15 claim 1 of the '788 patent, it describes various
16 requirement that the circuitry has to do, but it
17 doesn't -- you know, I've listed all the
18 possible -- possibilities that could be the
19 control circuit. So it doesn't give me the clear
20 idea as to what is the scope of this, that's what
21 I'm trying to say here.
22   Q   Based upon your reading of the claim 1
23 of your '788 patent and your reading as it
24 pertains to control circuit you would you identify
25 here these four things, these are the four things

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1 that you -- that it could possibly refer to?
2   A   Yeah.
3   Q   Okay. Which was number 1. The onchip
4 program interface of the gamma reference voltage
5 generator, ICs, integrated circuits.
6   A   Yes.
7   Q   Number 2, gamma reference generator
8 integrated circuit, themselves, which, for
9 example, the AG 1A1A, are to be an external
10 device, like PC-connected for testing or
11 calibration, which might also embody the means for
12 executing a predetermined algorithm. You got
13 four-some combination of these and specific
14 subparts thereof.
15   Right?
16   A   Yes.
17   Q   That's your understanding.
18   A   I listed as I was reading the term and
19 this came to my mind saying that any of this,
20 number 4 is sort of like any combination or some
21 subpart. So it's just very unclear.
22   Q   And these four points that you have
23 here on page 4, paragraph 107, was this based on
24 your understanding of the specification?
25   A   Well, yeah, part, because here, in '788

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1 patent, it talks about the method of calibrating a
2 liquid crystal display. So you know, we're
3 talking about some form of making an adjustment of
4 this LCD to, you know, fit the, you know, the
5 gamma to the -- the gamma curve. So, yes, it's
6 also coming from the specification because, you
7 know, 181A is used as example in like figures.
8   So 4 and 5 relate -- I'm sorry, 4A and
9 4B, and it's describing the chip, AG1A1A.
10   So all this based on the reading of the
11 patent, and trying to figure out what the scope of
12 the claim 1 is, and I come up with all this
13 possibility different scenarios.
14   Q   All right. Thank you.
15   And, Dr. Min, again, I'm going to ask
16 so the means for executing a predetermined
17 algorithm by any chance do you consider Innolux's
18 position taken in its IPR petition in drafting
19 this section?
20   A   Not personally, no.
21   Q   And I'm going to ask this, so maybe I'm
22 going to go into gamma reference voltage level on
23 page 51.
24   A   Yes.
25   Q   Can gamma reference voltage levels may

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1   be stored as digital data?
2   A   No. I think if you read the claim, so
3   as a part of claim 1 -- so this gamma reference
4   voltage level is coming from stored of gamma
5   reference control capability, which, according to
6   1A, is electrically reprogrammable and
7   nonvolatile. But this term, it's recited here in
8   claim element 1C of the '788 patent, varying gamma
9   reference voltage level on columns of a set
10 displayable -- set displayed by a control circuit,
11 where set circuit is separate from the display.
12   And so, you're actually varying the
13 voltage level right at the -- another the columns
14 of a display panel. So, you know, that voltage
15 level has to an apology voltage in order to vary
16 right there even that cannot come from a digital
17 nonvolatile storage cell.
18   Q   Are you familiar with the term "gamma
19 reference voltage levels," outside of the context
20 of the '788 patent?
21   A   I know what gamma correction is, and
22 the voltage associated with that, the gamma
23 correction. So this is a particular term that I
24 think '788 patent is using. But I think one -- I
25 know what gamma correction is.

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1   Q   How about voltage levels? You have
2   heard the term voltage levels?
3   A   Sure.
4   Q   And voltage levels -- can voltage
5   levels be stored as -- can that be stored as
6   (indiscernible) in the data?
7   A   In general context, yes.
8   But not as recited in this claim 1,
9   because you are talking about this gamma reference
10 voltage, none of it is actually on the column,
11 it's actually there. And that's where the gamma
12 reference voltage levels are first recited.
13   And then here, in 1E, it says said
14 gamma reference voltage level so same one, not
15 digital version of this, what is applied to that
16 column. The same gamma reference voltage level is
17 stored in this gamma reference control capability.
18   So whatever is applied on the columns
19 of display panel is also stored, the same one and
20 it has to be the analog value because you cannot
21 really apply that voltage level, not the digital
22 representation of the voltage level, but actual
23 voltage is applied to that column.
24   Q   And voltage levels have digital
25 representation.

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1   MR. JOHNSON: Object to form.
2   A   I mean, if you have a digital
3   representation before you apply to the column, you
4   have to be converted to analog value. I mean,
5   that's what drives the column of the display
6   panel.
7   MR. MILLER: Thank you, Dr. Min.
8   Counsel, I pass the witness.
9   MR. JOHNSON: I have no questions at
10 this time.
11   MR. MILLER: Okay.
12   THE WITNESS: Thank you.
13   MR. MILLER: Thank you very much again
14 Dr. Min for your time.
15   THE WITNESS: Thank you good to meet
16 you.
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